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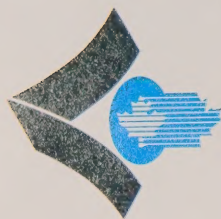
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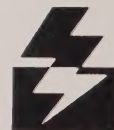
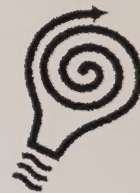
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contents

4 A Message from the Minister of Environment and Energy

5 From Grassroots to Boardrooms

It's been a long road to business respect,
but Ontario's recycling companies have
earned it

6 Hi-tech Marsh Works

A new technology helps clean wastewater
using nature's way

8 Go East

Trade mission helps Ontario green industries enter giant
China market

10 Waste Not, Build Not

Build Green introduces North America's first labelling program
for recycled building products

12 Acting Local, Going Global

Eco Logic's pollution eater is hungry for world markets

14 A Case of Opportunity

Re-useable beer case yields environmental and economic savings

17 Greening of the Big Three

Government and automakers are partners in a voluntary pollution
prevention program

18 Injecting a Little Green into the Local Economy

What one Ontario community is doing to improve the
environment and create jobs

20 A New Engine of Growth for Ontario in the 1990s

By Andrew Benedek



Cover illustration:
Paul Abbott

A message from the minister of environment and energy

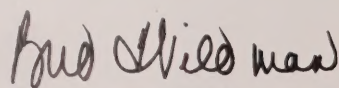
This magazine supplement is about a new way of thinking about the environment and doing business in Ontario. It's an approach that combines the goals of protecting the environment and putting Ontario back to work through innovative partnerships. You will find that partnership is the common thread which runs through the stories in this magazine.

There are many different types of partnerships. But what they all have in common is the way they pool the resources of industry with government, educational institutions, environmental organizations and community groups. The examples featured in *Green Horizons: Partnerships in Action* are just a sample of the many types of partnerships that exist and what they have accomplished.

Most of the companies and partnerships featured belong to the green industry sector. Broadly speaking, this sector offers the products, technologies and services which help us prevent pollution, clean up contamination, protect the environment and use water and energy more efficiently.

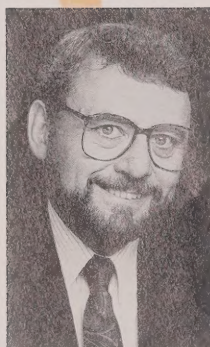
Equally important, however, is that green industry creates jobs. In fact, it is Ontario's third largest employer – ahead of such traditional industries as chemicals and pulp and papers industries. It might also surprise you to know that green industry has been growing at twice the rate of the Ontario economy as a whole. Markets are expanding not only here in Ontario and Canada, but also, and most especially in the United States, European Union, Asia and China. Ontario's green industry sector is exceptionally well positioned to take advantage of those export opportunities.

The Ontario government realizes the importance of the green industry sector and supports it with investments in infrastructure as well as, in research and development, and management and marketing. These investments will help the sector prosper in the domestic and international markets and create jobs in Ontario. It's a strategy that will benefit us all, and further proof that job creation and environmental protection can go hand in hand.



Bud Wildman, Minister

P.S. The "New Economy: Green Needs and Opportunities" is this year's theme of the annual Environment and Energy Conference of Ontario, November 15 and 16, 1994. The conference is a showcase of ideas and innovations that bring together environmental and economic objectives.



C.J. (Bud) Wildman
Ontario Minister of
Environment
and Energy



Gwen Discepolo
a founding
mother of
recycling in
Ontario

Since leaving the recycling organization in 1989, Gies has worked as a successful environmental consultant. Her other job, however, is chair of the Recycling Council of Ontario, a 500-member 3Rs advocacy organization that now includes companies involved in all aspects of waste material recycling and recovery: from the processing and sale of Blue Box materials to the manufacturing of balers, sorting machines, and even the Blue Box itself.

That a woman heads one of Canada's most influential 3Rs advocacy organizations is not unusual. Indeed, it says much about a green industry sector dominated by many businesses owned and managed by women.

"To a large degree, it was women who had the perseverance

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Grassroots to Boardrooms

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and dedication to turn the ideology and principles of the early grassroots environmentalism into what has become big business," explains Gies.

Take Gwen Discepolo, one of the "founding mothers" of recycling in Ontario. Earning respect, especially in the early days of recycling, was an uphill struggle for a businesswoman with environmental ideals.

"We started the business because we were concerned about the environment," says Discepolo. "But while the business and government sectors shook their heads, my husband and I quietly estab-

Continued on page 16 ►

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- At least 850,000 homes in Ontario use backyard composters to divert up to one third of their waste from disposal.
- New regulations that became law in March 1994 will ensure that all but the smallest Ontario municipalities will provide residents with recycling programs and backyard composting programs. Since 1987, the Ontario government has invested about \$200 million in municipal waste reduction programs.
- Ontario reached its 25 per cent waste reduction target in 1992, and is on the way to achieving the 50 per cent reduction target by the year 2000.



A new technology helps clean

hi tech marsh works

wastewater using nature's way

It's not quite alchemy. And you won't find pointy-hatted wizards using newts' eyes and arcane incantations to change lead into gold. But how else to describe a machine that transforms putrid sewage into clean water with a dose of nature's magic?

In reality, there's nothing really magical about a new generation of green technology popularly called living machines. Technically, environmental engineers refer to them as "bio-regenerative wastewater treatment".

What they do is treat wastewater using the principles of a marsh ecosystem. As with nature's own water purification system, a living machine uses sunlight, oxygen, bacteria, algae and other plant life, snails, and fish to break down and "eat" sewage. And it does so at a potentially lower cost than a conventional treatment plant.

In turn, the abundance of the plant and animal life acts as an indicator of the health of the living machine.

You will soon find a similar system at the world-famous Ontario Science Centre, located in Don Mills. Construction of the nearly \$1 million demonstration project began in September. Using a technology called *Solar Aquatics Sewage Treatment Systems*, about 10 per cent of the centre's sewage will be circulated inside a 130m² greenhouse through a series of clear plastic tanks and an artificial marsh containing wetland plants and animals. The final effluent then will be discharged into municipal sewers.

Two comparable, but smaller, demonstration projects are under way at the Boyne River School in Mulmur Township, north of Toronto, and the Body Shop's Canadian head office in North York. The three treatment systems differ because they are each designed to treat effluent of a specific composition.

The inventor of living machines, and Solar Aquatics in particular, is a Hamilton-born scientist, Dr. John Todd. Solar Aquatics technology has been tested at three sites in the northeastern United States.

Getting a new technology from the drawing board to commercial installation is not an easy task. It takes years of perseverance, risk-taking, and a lot of convincing to get the cooperative support of regulators and private and public sector financing. Ask any environmental entrepreneur: Sometimes it doesn't hurt to have the charms of an alchemist to get an innovative technology to the marketplace.

Frank Moir would wince at such talk. A no-nonsense engineer, *Continued on page 21* ►



Solar Aquatics Sewage Treatment System mimics marsh to clean effluent.

go east

Trade mission helps Ontario green
industries enter giant China market

Sun up in Shanghai, and a weary traveller is roused from sleep by the dissonant sounds of Chinese music played through a loudspeaker somewhere outside the hotel. Through the early morning haze a crowd of several hundred people perform a mix of Tai-chi, ballroom and what looks like ... line dancing.

China remains a land of startling contrasts and surprises. First impressions are dominated by the sheer number of people. Shanghai, for example, is the largest and most heavily industrialized city in the country. Sixteen million people live there – more than half the population of all of Canada. Yet Shanghai is only a drop in an ocean of 1.2 billion people. Such enormous numbers pose tremendous challenges, particularly when it comes to protecting the environment.

Helping China meet its environmental challenges and developing opportunities for Ontario companies prompted the provincial government to organize a trade mission this past September. With the urging of the World Bank, Beijing has targeted clean water distribution and wastewater treatment as its top priorities.

"Ontario is home to some of the leading firms in the world in the field of wastewater technology," says Environment and Energy Minister Bud Wildman, who led the two-week mission. "This trip gave us the opportunity to focus on opening doors to Ontario firms in the environmental field, particularly water and wastewater treatment."

The delegation had representatives from six Ontario companies, including Aer-O-Flo Environmental (part of the CENSOL consortium of seven environmental companies), CMS Rotordisk, Conestoga Rovers Associates, Sci-Corp Systems, Goodfellow Consultants, the Ontario Clean Water Agency and Ontario Hydro International.

The first obstacle faced by companies trying to do business in China is trying to determine who to talk to. Each municipality has its own environment department and foreign office. Foreigners



must deal with these officials as well as their counterparts at the provincial and central government levels. Persistence is a virtue, says Richard Belliveau, Canada's consul general in Shanghai.

"Canadian firms can count on an average of two-to-three years of hard work before they actually land a contract in China, with at least four personal visits by a company's most senior representatives."

Most experts also agree that for Western businesses to succeed in China, they must have an agent living and working there on their behalf.

Competition is fierce. For many of the smaller environmental companies in Ontario the key appears to be forming a consortium, as in the case of CENSOL, to work together and cut costs. Creative approaches help avoid being shut out of the largest market in the world, where annual economic growth is averaging 12 to 14 per cent.

The several water and sewage treatment facilities visited by the delegation pointed to yet another opportunity for Ontario firms. In some cases, equipment was in place but not operating to capacity or to specification. Jeff Marshall, president of the Ontario Clean Water Agency, sees potential for OCWA and Ontario firms to work on training Chinese officials to ensure they are getting the most out of existing technology. "In the city of Wuxi," he says, "We laid the groundwork for a transfer of water treatment technology, either through staff exchanges or direct training, which could be repeated elsewhere in China."

Burlington company signs \$10M deal

Following two meetings that included municipal officials from the city of Tiaxin and Minister Bud Wildman, Aer-O-Flo Environmental of Burlington, Ontario, signed an agreement for \$10 million worth of municipal water treatment and wastewater treatment facilities. Aer-O-Flo is already building a wastewater treatment facility for an expansion of the Volkswagen automobile plant in Shanghai.

Shanghai, one of China's "economic development zones," is experiencing a massive construction boom. But already, water and sewer infrastructure is strained far beyond capacity. The city produces over 8,000 tonnes of wastewater each day. It has facilities to treat 75 per cent of industrial wastewater and less than 13 per cent of its domestic wastewater. The rest is dumped into canals and the Huangpu River, which is also the prime source for tap water. Officials now demand that all new or expanding industries look after their own wastewater, so both new and current firms are looking for wastewater technology.



The Chinese also indicated a willingness to learn from Ontario's experience in developing regulations, which Harry Marshall of Aer-O-Flo says, have been beneficial to the environmental

technologies industry. "Government regulations and legislation are important in the development of new technology," Marshall told the Shanghai Academy of Environmental Science. "For example, the MISA regulations (Ontario's Municipal Industrial Strategy for Abatement) have created a timely, phased-in approach which provide the environmental protection industry with a vision of the future."

Don Haycock of Conestoga Rovers, who is also chair of OCETA (Ontario

Centre for Environmental Technology Advancement), attracted interest both in Nanjing and in Yisheng, billed as the "future home of China's green industry", with the idea of establishing a sister organization to OCETA in China.

Before the trade mission's conclusion in Hong Kong, where capital is less of a problem but where environmental problems loom as large as in China, a number of valuable contacts had been made and another company – CMS Rotordisk of Concord – signed an agreement valued at \$1 million per year to provide industrial wastewater equipment in Jiangsu. As Bud Wildman puts it, "We've helped open the door and some Ontario firms have already shown they can make it in the Far East. The key now is in follow-up, in proving we're serious about assisting the Chinese and in doing business in that part of the world." ♀

Below: L-r: Harry Marshall, Aer-O-Flo president; Bill Choy, Aer-O-Flo's agent in China; Minister Bud Wildman; Wang Zhen Nan, vice-mayor, Tiaxin; Zhao Guo Pin, director, Tiaxin Economic Development Zone.



waste *not* build *not*

Build Green
introduces North
America's first labelling
program for recycled
building products

First there was the Blue Box.

Then, the backyard composter. Michael Ellis thought he was doing everything he could to help the environment, only to discover each time a new green challenge made by his 14 year-old daughter, Sara.

"She learns this stuff about the 3Rs at school, and then she comes home and tells us what we're doing wrong," says Michael. "It's a case of the kids teaching the parents a thing or two."

The real green challenge came when Michael began to

renovate the basement of his house. "Sara insisted that I use recycled drywall, reused framing studs, and old doors. I



thought, 'no problem.'

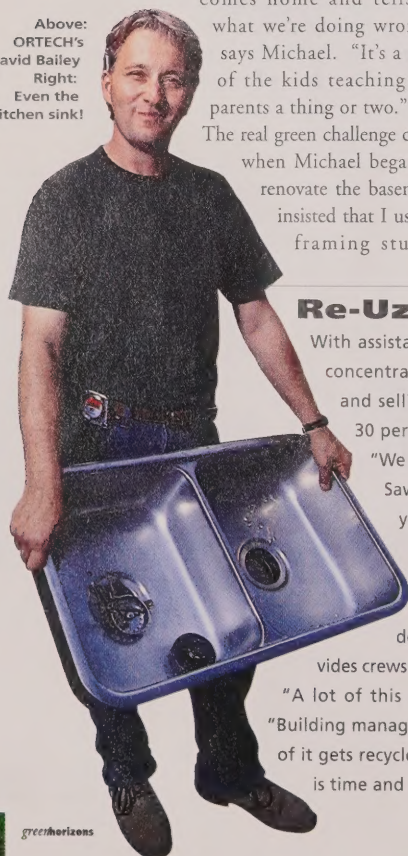
Yet, Michael found out that it took a lot of extra effort to be a green do-it-yourselfer.

He estimates that only about 20 per cent of the material in his new recreation room had been either recycled or reused.

"Many building supply stores don't stock recycled products; and sometimes what they do carry is more expensive than the stuff made of virgin material," he says. "Besides, I'm never sure if what I'm buying is really made of recycled material."

But starting January 1, 1995, a new product labelling program will take away some of the guesswork for many would-be green consumers. It's called Build Green, and its symbolic triad of a tall building,

Above:
ORTECH's
David Bailey
Right:
Even the
kitchen sink!



Re-Use For Do-It-Yourselfers

With assistance from the Ontario government, the Re-Use Building Centre opened in 1992, concentrating on providing its free pick-up service to residential builders and renovators, and selling its products (mostly to cottage-owners and do-it-yourself builders) for 20 to 30 percent of the retail price.

"We don't take anything that needs repair, and we don't do any refurbishing," says Bob Sawatsky, founder of Re-Use. "We don't pay for anything. Why should we pay you for your garbage? But we never charge for our services either. We don't want to make people pay for something we should be doing."

Success is evident in the increasing amount of business the Scarborough-based company is doing with industrial and commercial building contractors and interior designers. Sawatsky has also recently added a "deconstruction division", which provides crews to salvage reusable material from buildings being renovated or demolished.

"A lot of this stuff only becomes garbage because of the way it's handled," Sawatsky says. "Building managers say their stuff is going to material recovery facilities, but only 20 to 30 per cent of it gets recycled. What we take will be 100 per cent recycled (or reused). All we want from them is time and access to the site."

house and ever-green tree will be available for use under licence by manufacturers of building materials, decorative finishes, home accessories, hardware or construction tools whose products meet the criteria of the Build Green program. Wholesalers and retailers of these products, and builders can also participate.

In addition to containing recycled content or being made with renewable resources, all Build Green products have to meet strict Canadian Building Code requirements.

According to Peter Langer, president of the Greater Toronto Home Builders Association (GTHBA), one of the main sponsors of Build Green, the new labelling program will encourage product innovation, the development of domestic and export markets for these products, and ultimately, "the creation of jobs right here in Ontario."

Build Green is founded on the principle that consumer power will generate a demand for green products, pulling industry along with it. It's one of the most enduring ideas, embraced today by both industry and government, to have come out of the surge of public environmental awareness.

The story behind Build Green goes back to the early 1990s when the GTHBA undertook a study, funded in part by the Ministry of Environment and Energy, to look at how the building industry could meet the provincial goal of 50 per cent less waste by the year 2000. The study found that, for example, each new home construction generates about 2.5 tonnes of waste. It also identified many opportunities to reduce that waste.

This led to a three-way partnership involving the GTHBA, ORTECH Corporation, a material and technology research centre, and the Green ►



Typical Build Green Products

- Glass fibre insulation and ceiling tiles manufactured using a minimum of 50% post-commercial and post-industrial glass
- Carpet undercushion manufactured using 80% recycled ground tire rubber
- Carpet made from 100% post-consumer plastic soft drink bottles
- Gypsum wallboard containing recycled gypsum and recycled paper facing
- Ceramic tiles made of 70% recycled glass.

The new products will help create jobs in Ontario, according to Peter Langer, president of the Greater Toronto Home Builders Association.

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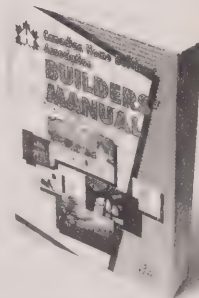
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**Canadian
Home Builders'
Association**

waste not, build not

Workplace, a program of the provincial government aimed at greening government-owned facilities across the province.

ORTECH helps to bridge the traditional gap between inventions of green building products and the marketplace. It conducts product development, technical consulting, testing and analysis in an effort to develop new ideas for the building industry. "We help inventors with the chemistry and the testing," says David Bailey, manager of ORTECH's building performance and Build Green programs. "Hopefully, this will overcome some of the traditional resistance in the marketplace to new products made from recycled materials."

Build Green made its public debut at the 1991 fall National Home Show in Toronto with the Green Dream Home, which featured as many building materials with recycled content as could be found at the time. This evolved into "Build Green Street," an exhibit of green building products now on permanent display at Designer's Walk in Toronto. In 1992, Build Green launched a challenge to high schools across the province to get students involved in designing everything from energy-efficient greenhouses to eco-friendly subdivisions.

The Green Workplace provided much of the seed funding for the program, and helped in cementing a partnership that has grown to involve many industry and government players. It established a resource centre of Build Green materials at Queen's Park. Recently, it developed new master specifications for all government-owned buildings that will encourage the use of recycled materials, especially those which display the Build Green logo.

Interest in the labelling program is spreading across Canada, and now, south of the border. As a result of meetings last January with U.S. government officials and building industry representatives, there is serious talk of establishing a North American partnership for Build Green.

This past September, Build Green was incorporated to give it legal ownership and licencing control over the new label. ♻

acting



local, *going* global

Eco Logic's pollution eater
is hungry for world markets

Sometimes, dreams develop into more than mere fantasy. Doug Hallett of Ontario-based Eco Logic had such a dream, and discovered one solution to help clean up the environment — a machine that eats toxic waste.

Like many sound scientific inventions, Hallett's idea was elegantly simple: duplicate nature's process for chemically breaking down organic matter, but make the process better, and make it faster.

In the Eco Logic Process, contaminated materials like PCBs are heated to 850 degrees celsius in a reaction chamber. Hydrogen, when combined with these organic compounds, breaks them down and reduces them to smaller and lighter hydrocarbons, primarily methane (natural gas). The methane can then be compressed or burned to heat the reaction chamber. By using the Eco Logic Process, toxic wastes are destroyed with at least 99.9999 per cent efficiency.

In 1986, Hallett, the recipient of the United Nation's silver medal for environmental stewardship, and the person who first identified dioxins in the Great Lakes, left his Environment Canada post as a scientist to form Eco Logic. He set up shop in the sleepy hamlet of Rockwood, less than an hour's drive west of Toronto. Later, he was joined by Kelvin Campbell, an engineer whose mandate was to design and build the pollution eater.

From the beginning, Hallett and Campbell developed their technology as an alternative to incineration. They realized that, eventually, tighter environmental regulations would favour a toxic waste eliminating process that was cost-effective, portable, and that left no emissions or residue.

As the Eco Logic Process began to take shape, Hallett knew he was tantalizingly close to developing a pollution fighting machine that could break into the billion-dollar U.S. environmental cleanup market.

To help bring its product to market, Eco Logic developed other areas of expertise, including environmental consulting, laboratory analysis and waste monitoring products. The company also raised nearly two-thirds of its \$8-million research and development fund privately. The remainder came from the Ontario Ministry of Environment and Energy's Environmental Technologies Program, Environment Canada and the U.S. government.

In 1991, the company had its first real taste of success. At the on-site pilot study at Hamilton Harbour — one of the 43 "areas of concern" in the Great Lakes identified by the International Joint Commission — the Eco Logic Process ►



Doug Hallett:
Australia
came to us.

acting local, going global

worked flawlessly, removing 99.9999 per cent of the toxic coal tar-contaminated wastes from the harbour sediment.

A year later, the equipment was trucked to Bay City, Michigan as part of a U.S. Environmental Protection Agency (EPA) project to remove PCBs from a heavily contaminated landfill.

Again, the Eco Logic Process performed to expectations. Another huge success, another step closer to the U.S. market. But it would be another two years before the EPA published its final report in July, 1994, praising the company's technology.

Within a matter of weeks of that final report, Eco Logic had closed a \$1.8-million deal with the Australian government to destroy 200 tonnes of hazardous pesticides.

"Australia came to us," smiles Hallett. "Because incinerators are not being built in Australia, they came to the Bay City test-site looking for alternative technology. They were serious about their mission, bringing a team of academics, industrial engineers, and a cabinet minister."

The company also struck a strategic alliance with an Australian environmental company to find additional customers for its Eco Logic Process.

The future has never looked brighter. In March 1994, Eco Logic became a publicly traded company. Today, it has a market value of about \$70 million. The company also added several savvy business executives to its Board, including Placer Dome Chair Robert Franklin, who says he would be disappointed if Eco Logic doesn't have annual revenues in excess of \$100 million within five years.

Hallett is anxious to realize that prediction even faster. Besides seeking opportunities to use its proven technology to clean up the Great Lakes, he is having discussions with the U.S. government agencies responsible for the cleanup of military bases. Eco Logic is also negotiating with a large U.S.-based company to form a strategic alliance that Hallett believes will open doors into the global market.

With strong interest already expressed in his pollution eating technology from Europe and Japan, that alliance can't happen soon enough for Hallett. ☛

a case of

Re-useable beer case

In the summer of 1991, Sleeman's Brewery and Malting Co. Ltd. was looking for ways to cut costs and improve the bottom line. One of the ways it found to achieve its goals was through better environmental stewardship.

"We first conducted our own study and found several areas where our brewery could save money by becoming more environmentally conscious," says John Sleeman, President and CEO of the company, which has been family-owned since 1834. "I guess you could say that we saved some green by being more green."

To augment their study, Sleeman's turned to the Ministry of Environment and Energy's Green Industrial Analysis and Retrofits (GIAR) program which identifies conservation and waste management measures for Ontario companies and assists in implementing the recommendations. The program helps companies manage their energy and water use more efficiently; reduce, reuse and recycle waste; and minimize or prevent pollution.

Sandwell Consulting Engineers, of Burlington, conducted the GIAR study at the Guelph brewery and identified improvements capable of saving the company up to \$138,400 annually through energy and water conservation and waste reduction.

Both analyses found that Sleeman's had an opportunity to reduce its waste stream and its costs by replacing its cardboard beer cases with re-useable plastic crates.

Coincidentally, Tri-R Packaging Systems of London, Ontario had developed a re-useable plastic case and needed a company to conduct production line and consumer testing. The Environment and Energy Ministry's Green Industry Office helped bring the need and the opportunity together.

Sleeman's, a small brewery with 100 employees, runs the production line test by handpacking each 24-bottle case (something that is not feasible at the major breweries) and market tested the case with consumers in its home market. Following the first consumer tests in the Guelph/Kitchener/Waterloo area, which is located about 45 minutes west of



Keeps on going and going...

opportunity

yields environmental and economic savings

Toronto, market testing of the gray tub-like cases was conducted in September in the Metropolitan Toronto and Hamilton areas.

Each case is designed to be re-used up to 1,000 times, thus generating large environmental and economic savings. It costs about 32 cents per use, as opposed to the 45 cents for each traditional corrugated cardboard case. Consumers pay a refundable deposit on each case.

Sleeman's already recycles the corrugated cardboard beer cases it currently uses. Once the re-usable case catches on, the brewery will continue to use some corrugated cardboard in the form of boxtops and will continue to recycle them.

"We realize that there is a market demand for green products, but we also realize that, as a business, you must watch your bottom line," says Sleeman. "We think the re-useable case will help us satisfy both requirements."

The Ministry of Environment and Energy is a partner in the endeavour and has contributed \$160,000 from the Environmental Technologies Program towards the pilot project. The test program is costing the brewery \$300,000 to run, an amount it expects to recoup quickly in savings on traditional packaging.

Sleeman's Brewery has made other environmental improvements to its brewery site and operations.

"We have put into place, at a substantial cost to ourselves, an on-site treatment plant for our wastewater," explains John Sleeman. "It puts less of a strain on Guelph's treatment facility and we're very proud of the fact that the wastewater we now release into the municipal system is household grade, far higher quality is required." ♻️



Steve Kidd, Tri-R (l) and John Sleeman: re-useable case means less cardboard waste.

Re-Useable Beer Case Draws Attention on Two Continents

Tri-R Packaging Systems, the London-based company that developed the new re-useable 24-bottle plastic beer case now being tested by Sleeman's Brewery, is expanding its horizons.

Canada's major breweries are said to be watching the production and market tests with interest and a deal is in the works with a Caribbean brewery. A major U.S. brewery has been examining the crate's potential and so far says it "is impressed." Tri-R also is currently actively negotiating with

companies in the Far East.

"We are exploring markets on two continents right now," says Tri-R President Barry Luce. "Once these deals are finalized, Tri-R could create up to 225 new jobs in the injection moulding and mould-making fields, as well as in spin-off areas such as transportation and raw materials supplies."

The crate is made from high density polyethylene, giving it both strength and light weight. It has a cardboard top that can be printed with individual companies' labels. The company is working now to develop a crate made of 100 per cent

post-consumer plastic.

"The re-useable crate will allow the brewing industry to move to even more of an environmental stewardship position," says Luce. "The industry already re-uses or recycles most of its bottles, caps and boxes."

After 50 round trips between the brewery and the home via the beer store, the case is ground down, remoulded and then sent back to the brewery for another 50 uses. This process can be repeated up to 20 times for a total of 1,000 round trips for each case.

"The average case will be used seven times a year," adds Luce. "So the anticipated life expectancy for each case is a little more than 142 years."

**from grassroots
to boardrooms** (continued from page 5)

lished our credibility with the community for our collection service, and with the (paper) mills for our quality control. We persevered, and it paid off."

In September, she and her husband George celebrated the 16th anniversary of Bronte 3Rs Materials Recovery Inc., their award-winning business that began with only one employee (their son Richard) and a rented pickup truck. Today, it is an established company servicing diverse commercial and industrial clients, and residences in Halton and Haldimand-Norfolk Regions, and with material markets all over the world.

With about 60 employees, Bronte 3Rs is an average size for a recycling business. At the top end of the scale is Laidlaw Environmental Services Inc., one of the world's largest waste management companies, located literally down the highway from Bronte 3Rs. Big or small, however, recycling and waste reduction is one of Ontario's fastest growing green industries. ♻️

**"Pizza with
everything please.
Hold
the waste"**

On September 9th, Topper's Pizza, of Sudbury, became the first company in Canada to adopt a new pizza box that uses 33 per cent less cardboard.

The "quick stack box and tray" system is designed for double-pizza orders.

"The bottom of the top pizza box acts as a cover for the bottom, eliminating the

need for a complete box on the bottom," says owner Keith Toppazzini.

"I keep in touch with my community," says Toppazzini.

"Everyone was talking

3Rs. In the pizza business, we only can deal with two Rs. We can't reuse a pizza box, for health reasons, so we reduce and recycle."

Three years ago, Topper's started using boxes made of 100 per cent recycled material and arranged with the local recycling company for the used boxes to be placed in the blue box.



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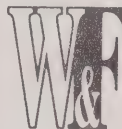
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greening of the big three

Government and automakers are partners
in a voluntary pollution prevention program

A two-year voluntary pollution prevention agreement involving the Ministry of Environment and Energy and Canada's "Big Three" automobile manufacturers has led to the reduction of more than 2,200 tonnes of toxic chemicals and other contaminants in the Great Lakes Basin.

The memorandum of understanding (MOU), signed by the Motor Vehicle Manufacturers' Association (MVMA), General Motors, Ford and Chrysler, and the federal and Ontario governments, is an "innovative and effective alternative" to the use of legislation and regulation to control toxic substances, according to Mark Nantais, president of MVMA. Under the MOU, Canada's three domestic auto makers implemented 15 pilot projects that prevent pollution, reduce wastes, enhance competitiveness and improve efficiencies in the way cars and trucks are manufactured. The two-year MOU was signed in May 1992.

One of the unique aspects of this project is that individual companies have the flexibility to set their own pollution prevention priorities at each of their facilities. Additionally, the companies enlisted the support of their suppliers in achieving their environmental goals.

An initial list of 65 substances was targeted for reduction or elimination, including non-halogenated hydrocarbons, halogenated hydrocarbons, metals and pesticides. Preliminary audits by the companies showed that 29 of the 65 substances were being used, generated or released in their manufacturing operations.

Of the 65 substances, Chrysler Canada targeted PCBs, chlorinated compounds, benzene, phenol, cadmium, lead and mercury as priorities for reduction or total elimination. The company has had great success in phasing out PCBs; there are now no PCB transformers or PCB-contaminated transformers in use at Chrysler facilities in Canada. Chlorinated solvents also have been eliminated from all Chrysler assembly plants in this country and the company has developed a "restricted list" to prevent new products containing these solvents from being used in the future.

The Ford Motor Company of Canada is using its "Materials and Toxicology System" (MATS), a corporate computer database, to identify and track toxic substances and the products and materials with which they are associ-

ated. Materials being considered for use are reviewed regarding their toxicological and environmental properties. Approved materials are given a unique "tox" number. All materials with a "tox" number are listed on MATS and materials without a "tox" number cannot be ordered.

The 11 manufacturing facilities owned by General Motors of Canada each conducted an initial "search," using material safety data sheets and the company's "Industrial Hygiene Hazardous Material Data Base," to determine how many of the 65 substances were being used in their operations. The company's environmental engineers and hazardous materials committee used this information to identify pollution prevention opportunities.

Overall, the three automakers found ways to reduce 227 tonnes of paint sludge, 191 tonnes of solvents and 8 tonnes of toxic metals annually that would have otherwise required expensive treatment and disposal. As well, the companies have reduced annual discharges of liquid industrial waste by 225 tonnes and the amount of solid waste going to landfill each year by 925 tonnes.

"Many of the individual projects could be replicated in other automobile manufacturing facilities in Ontario and across North America and in other sectors," says MVMA's Nantais.

The automakers' MOU was the first voluntary sector-wide pollution prevention agreement in the Great Lakes Basin set up through the Ministry of Environment and Energy's Pollution Prevention Office. The agreements commit industry sectors to develop and implement initiatives that will prevent the use, creation and release of hazardous substances and wastes.

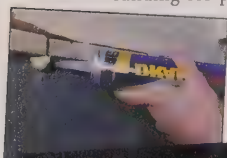
Other MOUs have been signed with the metal finishing, automotive parts manufacturing, and chemical producers sectors. A similar agreement has been signed with the Regional Municipality of Hamilton-Wentworth for the development of a regional pollution prevention plan. The Pollution Prevention Office has also established voluntary partnerships with industrial laundries, photo processing mini-labs, restaurants and food processing sectors. ♻



Pollution prevention starts on the line.

injecting a little green into the local economy

What one Ontario community
is doing to improve the environment
and create jobs



Thanks to a free visit from Peterborough Green-Up, Gordon Plumpton has begun to “green up” his recently bought bungalow. He will save hundreds of dollars in energy and water costs, and help the environment, while the local economy will reap rewards from his investment in green retrofits.

It sounds simple, and it really works. Peterborough Green-Up is one of 17 storefront “green community organizations” in Ontario that set up environmental projects which, in turn, stimulate local investment and jobs. These organizations receive seed funding for planning and implementation under the province’s Green Communities Initiative.

The mainstay of Peterborough Green-Up’s environmental program is called the “green home visit.” Upon request, two Green-Up advisors go over a house with the homeowner, checking for ways to reduce garbage and energy and water consumption. While one advisor heads outside to check out the resident’s lawn, garden and composter, the other goes downstairs into the basement to check the efficiency of the heating system. The

“inside” advisor wraps the homeowner’s electric water heater with a special insulating blanket, and covers exposed hot water pipes with a foam sleeve that conserves heat. It only takes about two hours and the savings begin immediately.

“The visit was amazing,” says Plumpton. “These people really knew what they were doing. I’ve recommended them

to a lot of my friends who have called Green-Up as well.”

The house Plumpton bought was an energy waster. There was virtually no insulation in the walls or attic, the appliances guzzled joules of energy, and the bathroom fixtures leaked buckets. The Green-Up advisors showed Plumpton the most cost-effective ways to save energy by updating appliances, increasing insulation in key areas and cutting down on water usage by installing a new, ultra-low-flush toilet.

He then went to Canada Trust and took out a \$6,000 “Enviroloan,” created to give participants access to money for environmental renovations at prime rates. Plumpton spent nearly all the money insulating his house, but he figures he’ll benefit for a long time to come with lower energy bills.

So far, more than 2,000 Peterborough homeowners have taken advantage of a green home visit. The estimated \$2 million they have spent on green retrofits has given a big boost to local suppliers of building materials, hardware stores and other merchants. Home improvements have created dozens of jobs for local renovators, contractors, and tradespeople.

The green community approach to local development is catching on across Ontario mainly because it makes common sense: help the environment, and create jobs at the same time. But there’s a lot more behind this simple idea.

Community involvement is the key to Peterborough Green-Up’s success, says manager David McLeod. Its board of directors represents every sector of the community, and so does its financial support. Green-Up gets 50 per cent of its funding from the Ministry of Environment and Energy through its Green Communities Initiative and Home Green Up programs. The other half comes from the city of Peterborough, private companies and organizations such as the

Peterborough Utilities Commission, Consumers Gas and Ontario Hydro. This also includes "in-kind" contributions, such as free printing, reduced office rent and energy-saving hardware used in the green home visits from private businesses.

It took more than a year of planning before Peterborough Green-Up's green home visit service was formally launched in June, 1993.

This year, Crane Canada also became involved in the program, offering homeowners discounts on "ultra-low-flush" toilets that save between six and 14 litres of water per flush. Such water conservation measures will help Peterborough defer building a \$25 million wastewater treatment plant.

Beyond the home visit, there are many environmental education projects that Peterborough Green-Up has helped initiate, including a five-acre ecology park which gives residents the opportunity to ask staff questions about organic gardening, native trees and flowers, specialty plants such as healing herbs, and local waterways. It also offers a school outreach program to the public and private county boards of education. ☼

Green Communities

Under the Green Communities Initiative, a three-year provincial program administered by the Ministry of Environment and Energy, funding support is provided for communities which have set up a broadly-representative organization to plan and implement integrated environmental projects. There are currently 17 green communities across Ontario:

- | | | |
|-----------------------|----------------|------------------------------------------------------|
| • Atikokan | • London | • Toronto East (Riverdale, Cabbagetown, The Beaches) |
| • Barrie | • Markham | |
| • Belleville (Quinte) | • Oshawa | |
| • Collingwood | • Ottawa | • Sarnia |
| • Cornwall | • Peterborough | • Sault Ste. Marie |
| • Elora | • Port Hope | • Thunder Bay |
| • Guelph | | |

Green home visits are usually the core of a green community program. The provincial "Home Green Up" program provides funding earmarked specifically for the green home visits. So far, more than 6,000 green home visits have been conducted, resulting in average energy savings of 10-20 per cent, and water savings of 10-25 per cent for the communities. Some homes have also cut their garbage by 30 per cent. Participating homes spend about \$2,000 each in green retrofits, which helps support the local economy. The three-year program eventually will have 250,000 participating households in 23 communities, generating more than \$500 million in green retrofits that will lead to the support of at least 10,000 new jobs.

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A new engine of growth for Ontario in the 1990s

By Andrew Benedek



Green industry today represents one of the most dynamic sectors in the Ontario economy and promises to be a major long-term source of Ontario's economic growth.

Worldwide concern for the environment presents enormous opportunities for producers of green goods and services - those that promote environmental protection, resource conservation, renewable and alternative energy, waste diversion, and pollution prevention. Green industries provide solutions, through innovative technologies and re-engineered processes, to global and local problems such as climate change and diminishing clean water supplies.

Ontario is ready to capitalize on those opportunities - and we already have a solid base on which to build. In 1992, Ontario's green industry sector generated an estimated \$6.8 billion to \$10.4 billion in revenue or roughly 2.3 to 3.5 per cent of the provincial Gross Domestic Product. The environmental protection subsector alone employs about 30,000 people, making it the third largest employer in the province.

In many green industry areas, Ontarians are recognized as leaders. For example, Ontario companies have

been designing and building water and wastewater treatment systems for decades - and they export this expertise around the world. In the energy crunch of the 1970s, Ontario companies became leaders in the development of energy-efficient building design. And in the mid-1980s, through the partnership of community-based organizations, municipalities and the provincial government, Ontario established one of the world's largest recycling systems.

Ontario's green industry is expected to grow by eight per cent a year over the next five years, creating approximately 8,000 new jobs. Among the driving forces behind the growth of domestic markets will be more stringent environmental standards and increasing public demand for environmental products and services. A good portion of future green jobs also will come from Ontario companies tapping into the expanding green markets abroad, especially those in the United States, Mexico, Eastern Europe, and Southeast Asia.

Growth in this sector will not only create highly skilled jobs. It will also stimulate technological advances, innovation, and skills development - all of crucial importance as Ontario seeks to create wealth in the years ahead.

The adoption of green technologies and practices by other economic sectors in Ontario strengthens industry overall and makes our economy more environmentally sound. Ontario has an opportunity to demonstrate to the world that environment and economic goals can go hand in hand.

In short, the green industry sector will add immeasurably to the quality of life for Ontarians far into the future. ♡

Dr. Andrew Benedek is chairman and CEO of Zenon Environmental Inc. Recently he chaired the 16-member Green Industry Ministerial Advisory Committee (GIMAC), established by the Ontario Government to develop a green industry strategy for the province.

Green industry contacts

Canadian Environment Industry Association, Ontario (CEIA)

CEIA is an organization of environmental firms and associations. The Ontario chapter of this four-year old national association helps to identify environmental problems for which its members have solutions; provides several forums for exchanging financial, business and technical information and encourages partnerships between all levels of government and its members. Recently, the association started forging international links with similar organizations in other countries. To date, it has signed agreements with environmental associations in

Mexico, Singapore and Malaysia. For more information: (416) 778-6590, fax (416) 778-5702.

Ontario Centre for Environmental Technology Advancement (OCETA)

OCETA's mission is to foster the development and competitiveness of small and medium-sized environmental companies. Its services include technical assistance, market assessment and business, and financial and management advice. It will also evaluate technologies, provide information on domestic and international regulatory legislation and promote education and training in environmental engineering and technologies.

An industry-led initiative, with the partnership of the provincial, federal and municipal governments, OCETA has opened offices in Toronto and Ottawa and plans to open offices in Waterloo and Hamilton before the end of this year. For more information: (416) 778-6656, fax (416) 778-5624.

For more green industry contacts, you can get a copy of the *Ontario Directory of Environmental Business Directories*. It is published by the Ontario Ministry of Environment and Energy and is available by calling CEIA (416) 778-6590, fax (416) 778-5702 or the ministry's Green Industry Office at (416) 323-4597, fax (416) 323-4436.

your guide to saving by going **green**

f a l l 1 9 9 4 , w i n t e r 1 9 9 5

Key programs and services of the Ministry of Environment and Energy for industries and non-profit organizations

Note: For programs and services aimed at municipalities and public sector agencies contact the ministry's Public Information Centre at (416) 323-4321, or toll free at 1-800-565-4923.

Greening of industries and homes

Green Communities Initiative

Financial assistance to a multi-stakeholder community organization to plan and implement integrated environmental and energy conservation projects. Includes commercial/institutional and transportation sectors, green space projects and education. *Circle Reader Service Card #1*

Home Green Up

Financial support to community-run programs for in-home assessments of opportunities to conserve energy and water and to reduce waste. Delivered through the Green Communities Initiative. *Circle Reader Service Card #2*

Green Industrial Analyses and Retrofits

Cost-shares green analysis of an industrial facility by a consulting engineer to identify opportunities for resource conservation and pollution prevention. If the company does the recommended retrofits, the ministry will cost-share the more expensive projects which have paybacks longer than 1.5 years. *Circle Reader Service Card #3*

Research, education and technology development

Environmental Technologies Program

Cost-sharing program to support the development of innovative technologies which solve environmental problems. Available to a wide range of Ontario-based companies and industries, as well as universities, research institutes and conservation authorities. *Circle Reader Service Card #4.*

Environmental Research Program

Financial support for research programs which examine solutions to significant or urgent environmental problems and associated human health effects. Available to universities, colleges, research foundations, municipalities, the private sector or interest groups. *Circle Reader Service Card #5.*

Energy and Environmental Economics Grants

Funding that supports energy and environmental policy and economic research to develop Canadian expertise. Colleges, universities, Canadian economic/policy research institutes and similar organizations may apply. *Circle Reader Service Card #6.*

Energy Efficiency Act and Regulations

Funds development of standards for selected appliances and other energy-using products. Standards are turned into regulations under the act. These regulations set minimum standards for energy use and restrict the sale or lease of such products in Ontario. *Circle Reader Service Card #7.*

Environmental Education and Awareness Program (EEAP)

Financial assistance for environmental education and awareness programs for a variety of groups (community, NGOs, interest, municipalities). *Circle Reader Service Card #8.*

For free information about the programs described above, circle the appropriate number. Return the card by mail postage-free to the address on back. Or, fax to (416) 323-4643.

- | | |
|---------------------------------------------------------|-----------------------------------------------------------------|
| 1. Green Communities Initiative | 13. EnerSearch |
| 2. Home Green Up | 14. Industrial Equipment Demonstration Program |
| 3. Green Industrial Analyses and Retrofits | 15. Market Entry of Energy Efficient Technologies (MEET) |
| 4. Environmental Technologies Program | 16. Industrial Retrofit Program |
| 5. Environmental Research Program | 17. Industrial Energy Services Program |
| 6. Energy and Environmental Economics Grants | 18. First Nations Community Buildings Energy Efficiency Program |
| 7. Energy Efficiency Act and Regulations | Name: _____ |
| 8. Environmental Education and Awareness Program (EEAP) | Address: _____ |
| 9. Environment and Energy Conference of Ontario 1995 | _____ |
| 10. Pollution Prevention Office | _____ |
| 11. Industrial Waste Diversion | _____ |
| 12. Industrial Waste Diversion - Scrap Tires | Tel.: _____ |

Environment and Energy Conference of Ontario 1995

Annual conference promoting green industry development and technology transfer. It highlights successful environment and energy commercial and community ventures. Includes exhibits. *Circle Reader Service Card #9.*

Preventing pollution and reducing waste

Pollution Prevention Office

Promotes the voluntary implementation of pollution prevention and recognizes the accomplishments of industry: Pollution Prevention Planning Partnerships and the Pollution Prevention Pledge (P⁴) Program. *Circle Reader Service Card #10.*

Industrial Waste Diversion

Technical and financial assistance for 3Rs projects which divert hazardous and non-hazardous industrial, commercial and institutional waste from disposal. Includes partial funding for capital, commissioning, research, demonstration or evaluation. *Circle Reader Service Card #11.*

Industrial Waste Diversion - Scrap Tires

Technical and financial assistance for 3Rs projects which divert scrap tires from disposal. Includes partial funding for capital, commissioning, research, demonstration or evaluation. *Circle Reader Service Card #12.*

Using energy more efficiently

EnerSearch

Assists private sector research, development, testing and initial demonstration activities of energy-related technologies in Ontario. The program funds up to 50 % of project costs. *Circle Reader Service Card #13.*

Industrial Equipment Demonstration Program

Helps industry to install and prove the performance of innovative energy efficient equipment and technologies by sharing the cost of the first time demonstration. Funding of up to 30 % of the project is available. *Circle Reader Service Card #14.*

Market Entry of Energy Efficient Technologies (MEET)

Helps suppliers sell their new energy products and technologies manufactured in Ontario by providing grants eligible first customers for up to 50 % of the product's purchase price. In return, the customers monitor the technology performance. This information can then be used by the supplier to market the new product. *Circle Reader Service Card #15.*

Industrial Retrofit Program

Assists Ontario industries improve their competitiveness by helping them to buy and install non-electrical energy efficient equipment and processes. Projects must have a payback period of 1.5 to five years. Wood energy projects have a payback period of 1.5 to 15 years. *Circle reader Service Card #16.*

Industrial Energy Services Program

Cost-shares financial and technical evaluations of plant equipment and process upgrades for energy efficiency. Available to companies that spend more than \$100,000 per year on all forms of energy. *Circle Reader Service Card #17.*

First Nations Community Buildings Energy Efficiency Program

This program encourages First Nations to implement energy efficient measures in their community buildings and offers community members a chance to gain valuable skills. All First Nations and reserves in Ontario are eligible to apply. *Circle Reader Service Card #18.*



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Ministry of Environment and Energy



GREEN INDUSTRY STRATEGY
STRATÉGIE ÉCO-INDUSTRIELLE

hi tech marsh works *(continued from page 7)*

Moir is executive vice-president at Proctor and Redfern Ltd., one of about 150 Ontario-based consulting engineering firms that specialize in environmental management. Proctor and Redfern first became interested in bio-regenerative wastewater treatment because of the technology's potential to expand the company's consulting services in the field of wastewater treatment. It has the exclusive licence to market the Solar Aquatics technology in Ontario.

According to Moir, the technology may be appropriate for tourist resorts, zoos, defence bases, and other places located far from a municipal sewage system. Ontario's cottage country is one area with both economic and environmental potential for this green technology.

"Unlike conventional sewage treatment, Solar Aquatics does not need complex mechanical machinery, it doesn't generate large quantities of sludge that

have to be disposed of, and it doesn't use toxic chemicals," he explains.

It was Moir who provided the initial inspiration that brought together government and corporate sponsors to back the Ontario Science Centre's Solar Aquatics demonstration project. They include the Ministry of Environment and Energy's Environmental Technologies Program and the provincial government's Green Workplace Fund, which together kicked in nearly two-thirds of the \$990,000. The other main partners include the Metropolitan Toronto School Board, Proctor and Redfern, and The Body Shop.

"We worked with Proctor and Redfern for several years," says George Zegarac, manager of the Environment Ministry's Research and Technology Section which administers the Environmental Technologies Program. "We reviewed all the plans in detail, helped expedite approvals, and along with the province's Green Workplace program, we brought



Hi tech partners: (l-r) Frank Moir, Proctor and Redfern; Craig Crawford, Green Workplace; Val Moraglia, Ministry of Environment and Energy; Dr. Emlyn Koster, Ontario Science Centre.

together the financing commitments from a number of partners."

Together, the three living machine demonstration projects will be designed and built with mostly Ontario-based equipment and expertise. According to Zegarac, the Environmental Technologies Program has participated in 65 similar demonstration projects, valued at \$75 million on a cost-shared basis with private sector proponents. It is estimated that more than 2,000 new jobs will be created when these projects reach the stage of commercial application. ♻

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Janice Hudson, Chemical Engineer

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